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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/437,607	11/10/1999	RUFUS L. CHANEY	1797.0090005	8216

7590 10/12/2005  
KRAMER & AMADO, P.C.  
Suite 240  
1725 Duke Street  
Alexandria, VA 22314

EXAMINER

IBRAHIM, MEDINA AHMED

ART UNIT PAPER NUMBER

1638

DATE MAILED: 10/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/437,607

Applicant(s)

CHANEY ET AL.

Examiner

Medina A. Ibrahim

Art Unit

1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 17 August 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 8-18, 38-40, 48, 49 and 54-60 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-4, 8-18, 38-40, and 48-49, and 54-60 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

PD

### **DETAILED ACTION**

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Applicant's response filed 05/31/05 in reply to the Office action mailed 12/29/04 has been entered. Claims 1-4, 8-18, 38-40, and 48-49, and 54-60 are pending and are under examination.

All previous objections and rejections not set forth below have been withdrawn in view of Applicant's amendment to the claims or arguments.

#### ***Claim Objections***

Claims 1, 10, and 49 are objected to under 37 CFR 1.75 as being substantial duplicates of claims 54, 55, and 56, respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

#### ***New Matter***

Claims 1-4, 8-18, and 38-40, 48, 54 and 60 remain rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This rejection is repeated for the reasons of record as set forth in the last Office action of 12/31/04. Applicant's arguments filed 05/31/05 have been considered but are not deemed persuasive.

Art Unit: 1638

Applicant argues that the disclosure as originally filed provides support for a pH of about 5.5 to 7.0 and more alkaline. Applicant asserts that "more alkaline" pH on page 8 of the specification includes a pH of 5.6 to 9.5. Applicant points to page 8, lines 18-20 and 23-24 of the specification for support.

This is not found persuasive because neither the specification nor the claims as originally filed recite a pH that is greater than 7 or use the word more alkaline soil pH which in the sense that it will include any pH above 7. On page of the specification, lines 16-23, the preferred soil pH for nickel ranges from 5.6 to 6.7, but when the iron oxide level in the soil is low, a more alkaline pH may be used. There is no implicit or explicit inclusion of pH that ranges up to 9.5. For cobalt, the preferred pH is 5.5 (see page 8, line 22). Table 1 on pages 21-22, the soil pH varies from 4.84 to 6.54, while in Tables 2 and 3, the soil pH ranges from 4.99 to 5.57. No mention is made of pH greater than 7 or pH that ranges to 9.5. Therefore, the limitation of soil pH of up to 5.6 to 9.5 is considered a new matter. Applicant is required to delete the New Matter in response to this Office action, as stated in the last Office action. See MPEP 2163.05. See also *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976) and *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1328, 56 USPQ2d 1481, 1487 (Fed. Cir. 2000).

### ***Claim Rejections - 35 USC § 112***

Claims 1-4, 8-9, 48-49, and 54-60 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of selectively increasing the amount of Ni recovered from metal containing soil by adjusting the pH of the soil from an initial pH to a raised pH of at least 7.0, and cultivating in the soil a Ni-

Art Unit: 1638

hyperaccumulator plant, does not reasonably provide enablement for the use of a cobalt-hyperaccumulator plant in said soil pH for increased metal recovery. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. This rejection is repeated for the reasons of record as set forth in the Office action of 12/31/04. Applicant's arguments filed 05/31/05 have been considered but are not deemed persuasive.

Applicant argues that the specification discloses a large number of Ni and Co-metal hyperaccumulators that are suitable in the claimed methods of selectively increasing the amount of at least metal recovered from metal contaminated soil. Applicant asserts that one of ordinary skill in the art can easily identify metal hyperaccumulators, adjust soil pH and cultivate at least one of said identified hyperaccumulator plants or at least one of the metal hyperaccumualtor plants listed on pages 10-17 of the specification in the soil to permit metal accumulation (response, p. 3).

This is not found persuasive because the rejection is not based on whether one of ordinary skill in the art can adjust soil pH to a higher level and cultivate a Ni or Co hyperaccumulator plant in said soil for metal recovery. The claims are rejected because the specification is not enabling for a method of increasing the amount of at least one metal recovered from a metal containing soil by adjusting the pH of the soil from an initial pH to a raised pH of 5.6 to 9.5 and cultivating a Co-hyperaccumulator in said soil to recover Ni or any other metal. The specification does not teach that metal recovery can be increased in Co-hyperaccumulator plants at soil pH of 5.6 and above. Tables 1-3 of the specification show that adjusting the soil from an initial pH to an increased soil pH of 6.0 actually decreases the accumulation of cobalt and manganese in plant tissues. In Table 1, the metal hyperaccumulator of *Alyssum murale* grown on soils of pH 6.0, for example, accumulated far greater amounts of nickel than the plants grown on soils of pH 4.5. In addition, plants taking up larger amounts of nickel at soil pH 6.0 accumulated smaller amounts of other metals such as cobalt and manganese. Similar results are also shown in Tables 2-4. Therefore, adjusting the soil pH to at least 5.6 to 9.5 is not expected to recover increased amount of cobalt and manganese. Therefore, claims drawn to a method for selectively increasing the amount of metal recovered by adjusting soil pH from an initial pH to an increased pH of at least 5.6 to 9.5 and cultivating Co or Mg-hyperaccumulating plants in said for metal recovery are not supported by an enabling disclosure.

Applicant argues that the claims only require that the plants accumulate metals at the specified level of soil pH rather than an increase or improvement in metal accumulation at that pH. However, enablement of the invention is not only what the claims require but also what is taught in the specification and what was known in the prior art at the time this application was filed, and if one of ordinary skill in the art can practice the invention as claimed without undue experimentation. The claims require the use of "nickel-hyperaccumulator, cobalt-hyperaccumulator, and manganese-hyperaccumulator" plants and increased recovery of metals including nickel, cobalt, palladium, rhodium, ruthenium, platinum, iridium, osmium, rhenium and mixtures thereof and soil pH of 5.6 to 9.5. In this application, however, the specification shows that only Ni-hyperaccumulator plants are capable of recovering Ni at the claimed soil pH level. At the paragraph bridging pages 4 and 5 of the response, Applicant admits that all disclosures of the prior art are the opposite of what have been discovered in the instant specification. The prior art teaches that lowering soil pH to acidic level increases solubility and uptake of metals including Ni, Co, Mn, and Zn, thereby increasing recovery and accumulation of metals in plant tissues. Therefore, given the teaching of the specification which is limited to the use of Ni-hyperaccumulator plants at soil pH of at least 5.6-7.0 and increased recovery of nickel; the stated of the prior art which teaches exactly the opposite of Applicant's discovery, the amount of experimentation required to practice the invention as claimed is expected to exceed routine. In addition, it is clear that further research is required to understand this unusual effect of soil pH

Art Unit: 1638

adjustment (from low pH to higher pH) on metal accumulation and recovery metal hyperaccumulators. Therefore, the rejection is made and maintained.

Applicant is invited to provide evidence in the form of Data or 132 declaration to support the broad scope of the claims; or also Applicant may amend the claims to limit the use of a Ni-hyperaccumulator and initial soil pH to an increased level of at least 5.6 to 7.0 to obviate the rejection.

### ***Remarks***

Claims are deemed free of the prior art in view of the declarations under Rule 1.132 of Yin-MING of 02/13/03 and 12/08/03.

No claim is allowed.

### **Contact information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Medina A. Ibrahim whose telephone number is (571) 272-0797. The Examiner can normally be reached Monday -Thursday from 8:00AM to 5:30PM and every other Friday from 9:00AM to 5:00 PM. Before and after final responses should be directed to fax nos. (703) 872-9306 and (703) 872-9307, respectively.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Dr. Amy Nelson, can be reached at (571) 272-0804.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Application/Control Number: 09/437,607

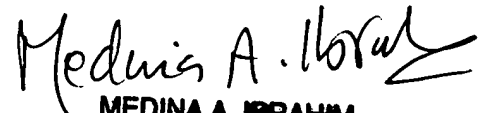
Page 8

Art Unit: 1638

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

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MEDINA A. IBRAHIM  
PATENT EXAMINER